Course: IMCA (A.Y.-4) **Semester:** 1

Prerequisite: knowledge of Cyber Security Fundamentals, Linux, Cryptography, Steganography, and Windows Command Line.

Rationale : This course is designed to provide basic knowledge about the Cyber Security and Infrastructure. It also provides basic concepts of Linux and also provides knowledge about how we can secretly write and hide our data to maintain security. It will help to develop logical abilities and a practical lab setup.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
					Internal Marks			External Marks		
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	T	CE	P	T	P	
3	-	2	-	4	20	20	20	60	30	150

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Basics of Information Security** Definition and Importance, Needs of Information Security, Cybersecurity umbrella, Data vs Information, CIA. Triad: Confidentiality, Integrity, and Availability, Authentication,Authorization, and Auditing/Accounting, Case Study: "Choose an organization that failed to adhere to the principles of Confidentiality,Integrity, and Availability (CIA) in their information security practices. Analyse the impact of this failure on the organization and propose strategies for improving CIA implementation for better organizational Security." Cyber Jargons: Introduction to Attacks, Threats, Vulnerabilities, and Risk, Differentiating Threats, Vulnerabilities, and Risk, Real-World Examples of Breach Incidents and Case Study: "Select a real-world example of a cyber security breach incident and explain the attacks, threats,vulnerabilities, and risks associated with it. Differentiate between threats,vulnerabilities, and risks in the context of the incident and suggest preventive measures to Mitigate such incidents in the future."	**25**	**10**
2	**Linux Fundamentals**Identify the Linux Design Philosophy, Linux Distributions, and Installation of Linux, Enter Shell Commands, and Get Help with Linux, Command Line Interface (CLI), and File System Hierarchy. Managing Users and Groups: Assume Superuser Privileges, Create, Modify, and Delete Users, Create, Modify, and Delete Groups and Configure Account Profiles.	**25**	**10**
3	**Cryptography** Basic Concepts and Techniques, Encryption and Decryption, Types of Keys, Key Exchange, Types of Cryptography: Classical and Modern, Possible Attacks in Cryptography, Hashing, Digital Signatures: Authenticating Messages, Introduction to Cryptocurrency,Emerging Issues and Real-world Examples in Cryptography, Hands-on Lab: Perform Confidentiality (Encryption- Encipher. it), Integrity (Hash,Checksum, etc.), and Availability (Backups) and also perform the modern and classical Cryptography practical by using Cryptool 2.1. Steganography: Basic Concepts and Techniques, Steganographic Methods: Text Steganography, Image Steganography, File Steganography, Video Steganography and Audio Steganography, Steganography Tools and Software: Popular Steganography Tools and Features and Capabilities of Steganography Software, Detection and Countermeasures: Steganalysis Techniques and Anti-Steganography Measures, Real-world examples and Applications of Steganography, Ethical and Legal Considerations in Steganography and Hands-on Lab: perform practical based on Text Steganography, Image Steganography, File Steganography, Video Steganography, and Audio Steganography.	**25**	**10**
4	**Windows Command Line**Introduction to Windows Command Line, File System and Navigation, System Information and Management, User Account Management, Networking, and Connectivity, and Batch Scripting Basics.	**25**	**10**
	Total	**100**	**40**

Course Outcome

After Learning the Course the students shall be able to:
1. Recall and define the fundamental concepts and principles of information security, including the CIA triad, authentication, authorization, and auditing/accounting, as well as common cyber jargon and terminology. Additionally, identify and describe the types of cybercriminals and cybercrime activities they engage in. 2. Understand the Linux design philosophy, basic shell commands, process to assume superuser privileges, steps to create, modify, and delete users and groups, and process to configure account profiles. 3. Evaluate emerging issues and real-world examples in cryptography, including the impact of quantum computing on cryptography, and the role of cryptography in securing IoT devices. 4. Windows Command Line provides a powerful interface for file system navigation, system information retrieval and management, user account administration, networking tasks, and connectivity management, along with the basics of batch scripting for efficient automation.

List of Practical

1.	**Lab Setup and Installation of Virtual Machine** ● Different types of Virtual Machines: VirtualBox and VMware ● Different types of OS file installation: Linux, Windows (ova/ovf/iso image)
2.	**Practice on following concepts** ● Confidentiality (Encryption, Steganography) ● Integrity (Hash, Checksum etc.) ● Availability (Backups)
3.	**Perform Confidentiality (Encryption- Encipher. it)**
4.	**Integrity (Hash, Checksum, etc.)**
5.	**Perform the modern and classical Cryptography practical by using Cryptool 2.1**
6.	**Perform practical based on Text Steganography: Image Steganography, File Steganography, Video steganography, and Audio Steganography**
7.	**Lab Setup for Virtual Environment**
8.	**Perform practical on Linux (Managing Users and Groups)**
9.	**Perform practical on windows command line (command prompt basics: Like cd, dir, echo, cls, etc.).**
10.	**Perform practical on windows command line (create, copy, move, delete, and rename files and directories).**
11.	**Over The Wire CTF**
12.	**Perform practical on SSH**

Course: BCA **Semester:** 1

Prerequisite: Basics knowledge of Trigonometry and Geometry

Rationale : To acquire fundamental knowledge and apply in Bachelor of Computer Application discipline

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	0	0	-	3	20	20	-	60	-	100

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Trigonometry** Measurement of Angles (Degree to Radian and Radian to Degree), Standard and Allied Angles, Multiple and Sub multiple Angles	15	7
2	**Functions** Definition of function, Types of function , Composite function and Inverse function	10	4
3	**Limits** Definition of limit, meaning of ‘x tends to 0’ , ‘x tends on infinity’, Right and Left hand limit , working rules of limit , Standard formula of limit and Example	20	10
4	**Differentiation** Definition, Rules of Sum, Product, Quotient of functions, Chain rule, Derivative of Implicit function and Parametric functions, Logarithmic differentiation, Successive differentiation up to second order. Maxima and Minima	20	10
5	**Integration** Concept , Integral od standard functions , Working rules of Integration , Integration by parts , Integration by substitution method , Definite integral	20	10
6	**Co–ordinate Geometry** Point : Distance formula in R2, Mid-point , Section formula Line : Forms of equation of straight line, slope point form, Two point form, Parallel and perpendicular lines	15	7
	Total	100	48

Reference Books

1.	**Applied Mathematics (TextBook)** By H.K.Das | S.Chand Publication
2.	**Elementary Calculus** By P.R. Masani, R. C. Patel, D. J. Patil
3.	**Differential Calculus** By Shantinarayan | S.Chand Publication

Course Outcome

After Learning the Course the students shall be able to:

1. Make Students find height of something and distance between two things easily using trigonometric functions.
2. Understand to check whether some function if convergent or divergent on the basis of its limits
3. With the help of derivative student able to find maximum and minimum value of some function
4. Integration helps to find area
5. Concept of Geometry helps to find distance between point and line, point to point

Parul® University

Subject Syllabus

05101131 - Financial Accounting

Course: BCA

Semester: 1

Prerequisite: Basics knowledge of commercial business terms

Rationale : To acquire fundamental knowledge of accounting and its application.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
					Internal Marks			External Marks		
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/	Credit	T	CE	P	T	P	
3	0	0	-	3	20	20	-	60	-	100

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Basic Accounting**• Introduction, Definition, Advantages and Limitations • Importance and scope, concepts and conventions, generally accepted accounting principles • Branches of Accounting - Financial Accounting, Cost Accounting and Management Accounting	17	8
2	**Basic Concepts**• Double entry framework, Types of Account, Rules of Debit-Credit and • Basic Accounting Terms,Basic concepts of Journals, ledgers, purchase book, sales book, cashbook.	27	13
3	**Preparation of financial statements**• Journal • Ledger • Trial Balance • Trading Account • Profit and loss account • Balance sheet	35	17
4	**Application of computers in accounting**• Tally Accounting Software - Features	21	10
	Total	100	48

Reference Books

1.	**Accounting for management (TextBook)** By Bhattacharya & Deaden | Tata McGraw Hill | 5th
2.	**Elements of Book Keeping & Accountancy** By B.S. Shah & Sons | B.S. Shah & Sons
3.	**Accounting With Tally** By Nadhani | K. K -BPB Publications
4.	**Financial Accounting** By R.L Gupta & V.K Gupta
5.	**Fundamental Accountancy** By S.N. Maheshwari

Course Outcome

After Learning the Course the students shall be able to:

1. To acquire fundamental knowledge of accounting and its application
2. Able to manage the stock cash, Assets, Liabilities
3. Able to solve financial problems
4. Able to manage profit and loss

Course: BCA **Semester:** 1

Prerequisite: Knowledge of english language studied till 12th Std

Rationale : Basic Communication skills are essential for all graudates

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
2	2	0	-	4	-	100	-	-	-	100

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	Determiners and Articles	5	2
2	Industry Expectation	5	3
3	Nouns and Pronouns	5	2
4	Motivation	5	3
5	Prepositions	5	2
6	Ice Breaker + Introducing your friend	10	3
7	Pronoun-Antecedent Agreement	5	2
8	Debate	10	3
9	Subject-Verb Agreement	5	2
10	Extempore	10	3
11	Verbs	5	2
12	Tourism Pitch	5	3
13	Lifeboat	5	3
14	Listening skills	5	3
15	Story Mason	10	3
16	Play Teacher	5	3
17	Reporter	5	3
	Total	105	45

Reference Books

1.	**Word Power Made Easy** By Norman Lewis | Goyal Publishers
2.	**Understanding and Using English Grammar** By Betty Azar & Stacy Hagen | Pearson Education

Course Outcome

After Learning the Course the students shall be able to:
1. Comprehend day to day English 2. Respond to familiar issues / topics in English 3. Speak confidently on stage

Course: IMCA (A.Y.-4) **Semester:** 1

Prerequisite: Basic knowledge of Computer and IT

Rationale : The objective of this course is to familiarize students with concepts of fundamentals of information technology and detailed working of computer and its application

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	-	2	-	4	20	20	20	60	30	150

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Introduction of Computer**Overview of Computer, Different Characteristics computers, Architecture of Computer, Computer Input/ Output Peripheral devices, Different types of Generation in computers, Types of computers, Application of computers	10	5
2	**Input Output Peripheral devices**Computer languages: Overview, Evolution of programming languages, Types of programming languages, Characteristics of programming language Input devices: Overview, Different Types of input devices, character recognition of Optical device, Recognition of Optical Mark, recognition of Magnetic ink character, Bar code reader, Output devices: Overview, Types of output devices, Computer software: Introduction, software definition, software and hardware relationship, different categories of software	15	7
3	**Number Conversion in Computer**Overview of Decimal, Binary, Octal and Hexadecimal numbers, Octal number system, Decimal number system, Hexadecimal number system , Number Conversions, Addition, Subtraction, Multiplication and Division in Number System, Complement of Binary Number System, Subtraction using Compliment, Binary number system, , Binary Coded Decimal (BCD), Addition of BCD Numbers, Non-Weighted Number System, Gray code Conversions - Gray and Binary Codes , Fixed point and Floating point	20	10
4	**Fundamentals of Gates**Overview (design) of gates, derivative gates, and universal gates. Combination and sequential logic circuits, half adders, full adders, half subtractors, and full subtractors. Flip-flops, SR, D, JK, JK master-slave, T flip-flops, encoders, decoders, multiplexers, demultiplexers.	20	10
5	**Memory Management**Primary memory: memory representation, memory hierarchy, random access memory, RAM type, read-only memory, ROM type. Secondary storage: Introduction, Classification, Magnetic tape, Magnetic disk, Optical disk, Magneto-optical disk, Memory stick, Universal serial bus, large capacity storage device.	15	7
6	**Basics of Internet**Evolution, basic internet terminology, internet connectivity, internet applications, network types, topologies	5	3
7	**Understanding Word Processing and Spread Sheet**Introduction, Objectives, Editing Text, Formatting the Text, Table Manipulation, Manipulation of Cells, Formulas and Function in excel.	15	6
	Total	100	48

Reference Books

1.	**Digital Logic and Computer Design (TextBook)** By Morris Mano | PHI
2.	**Introduction to Information Technology** By ITL Education Solution Limited | PearsonEducation | 2012
3.	**MS OFFICE 2007** By Vikas Gupta | Wiley
4.	**Computer Fundamentals** By Anita Goel | Pearson Education | 2011
5.	**Digital Fundamentals** By Thomas L Floyd | Pearson

Course Outcome

After Learning the Course the students shall be able to:

1.Explain the basic structure and functionality of computers and their role in different applications.
2.Identify and differentiate between various input and output devices, explaining their functions and applications.
3.Solve basic number conversion problems and analyze simple digital circuits using fundamental logic gates.
4.Evaluate memory management techniques and utilize basic internet functions, word processing, and spreadsheet tools in practical scenarios.

List of Practical

1.	**1. Case study on salary calculation** Calculate Allowance based on given Condition. 1. HRA is 10% on Basic Salary if Salary more than 20000. 2. DA is on 25% on Basic Salary. 3. Medical Allowance (MA) = Executives get MA Rs 1000, Officers get MA Rs 700 & Assistants get MA Rs 500 4. Calculate Gross Salary. Gross Salary = Total of Basic + HRA + DA + MA 5. Calculate Professional Tax Upto 5000 = 0, upto 1000 = 60, upto 15000 = 100 & over 15000 = 150 6. Calculate Annual Salary 7. Calculate Income Tax Up to 100000 = 0, then 50000 = 10%, then 100000 = 20%, over 250000 = 30% Hint: Formula =IF (K2<=100000,0,IF(K2<=150000,(J2-100000)*10%,IF(K2<=250000,(K2 150000)*20%+5000,(K2- 250000)*30%+25000))) 8. Calculate Net Salary Payable Annual salary - income tax
2.	**Formatting alignment and creating table** 1. Type in the Title Microsoft Word Computer Training Manual 2. Text formatting: Times New Roman font, size 14, Bold and Blue. Paragraph formatting: Align Center. 3. Type in the first paragraph. Text formatting: Arial font, size 11. Paragraph formatting: Align Justify, First Line Indent at ´ Type the notes.
3.	**Word art and clip art** Prepare visiting card for caterrer service in word 2007 Prepare interactive word document.(apply all formatting style)
4.	**Macro** creating macro
5.	**Invitation letter format** The format of invitation is as shown below: Anand Institute of Information Science, Shri. Ramkrishna Seva Mandal Opp. Town Hall, Anand 388 001 Ph. No. (02696) 266062 To, The Director/Principal, The name of Institute´ ³The address of Institute´

6.	**Work sheet exercise** Insert a column. Number of Teams between columns Year and Tickets sold with values Insert a row between row 3 and row 4 with values. Delete column revenue, Rename the Sheet1 with name Format cells, Delete Sheet3. 6. Hide row 4. 7. Insert a sheet and rename it with name.
7.	**Table exercise** Complete the following tasks: a) Widen the first column to 15. b) Add a row beneath the details on Southampton to show the average monthly rainfall. c) Add a new column after the June rainfall statistics to show the total rainfall in each city over the period. d) The rainfall in Birmingham during March should be 58. e) Insert a new row between the rows holding the London and Sheffield rainfall statistics. Enter the following details: Newcastle 65 63 57 50 39 21 f) Copy the appropriate formula to obtain the total rainfall for Newcastle during the period
8.	**Table column exercises** Change the column width of column B to 15. 2. Change column width of column D to G to 20. 3. Change column width of column A and B to 14 4. Calculate Total Sales for each item and store result in column D. Hint: Total sales=Quantity * Unit Price. 5. Calculate Total Sales for all the items and store result in cell B6. 6. Copy Unit Price for PC in cell D7. Move Total sales from cell B6 to D8.
9.	**Insert remove columns of table** Complete the following tasks: a) Add a Units Used column to show the number of units of electricity used by each customer (Hint: Subtract the Previous Reading from the Present Reading). b) The cost of one unit of electricity is Rs.0.08. Add a Unit Cost column to show the cost of one unit. (This column will contain 0.08 in all of the relevant cells). c) Add a Units Charge column to show the total cost of the units used by each customer. (Hint: Unit Cost * Units Used) d) There is a standing charge of Rs.13.60 on each customer's account. Add a column to display this Standing Charge. (This column will contain Rs.13.60 in all of the relevant cells).
10.	**Math functions** The functions and commands required to solve the following assignment are as follows: Enter data - labels and values 1. Editing cell contents 2. Saving a spreadsheet 3. Altering column widths 4. Using the SUM function 5. Adding a new row after the last row of data 6. Adding a new column after the last column of data 7. Copying a formula 8. Using the AVERAGE, MIN, MAX function 9. Inserting a new row between existing rows Inserting a new column between existing columns
11.	**Table formatting using background color** Format the Student Grades so that your spreadsheet looks like the one below (you can use different colours, if you like).
12.	**Calculate total sale and commission** based on given details in table
13.	**Filter data of excel sheet** 1. Count number of order in Boston. 2. Count number of Microwave order. 3. Count number of journeys with truck 3. 4. Count number of Peter White journeys. 5. How many times is no. of items less than 20. 6. Display sum of refrigerator items. 7. Display sum of washing machine items. 8. Display sum of items transported by truck 4. 9. Sum of items transported by trucks.

	10. Number of microvawe orders in Boston . 11. Number of Peter White journeys with truck 1. 12. Number of orders in Boston after 2/3/2013: 13. Number of orders between 2/3/2013 and 2/6/2013: 14. sum of microwaves transported to NY: 15. sum of items transported to Pittsburgh by truck 1: 16. sum of items ordered between 2/3/2013 and 2/6/2013: 17. sum of items transported to NY, Baltimore and Philadelphia
14.	**Conditional formatting** do conditional formatting on the excel sheet in given data
15.	**Sorting** sort given data of excel sheet
16.	**Typing exercise** aq1 qa sw2ws de3ed fr4rf gt5tg queen 11 queens 1 apple 11 apples 2 wishes 22 wishes 2 swims 22 swims eddies 33 eddies 3 deeds 33 deeds 4 roses 44 roses 4 fish 44 fish tugs 55 tugs 5 goats 55 goats
17.	**Water mark and header footer** inserting and removing
18.	**Power point presentation** creating presentation
19.	**PPT** add timing and sound effects
20.	**Access create data base, tables** create db, tables
21.	**21. Access, relations between tables** relations between tables

Course: IMCA (A.Y.-4) **Semester:** 1

Prerequisite: Basic approach of Web Development

Rationale : The objective of this course is to familiarize students with concepts of fundamentals of web development and website designing

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	0	2	-	4	20	20	20	60	30	150

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Introduction to Internet**Overview of Internet: Concept of Internet, Evolution, Concepts of Intranets and extranets, Internet Applications: Email, Telnet, FTP World Wide Web: Concept, Web page: static, Dynamic, Active Scripting languages: Server side, Client Side. Web: Designing, Development and Publishing, HTTP, URL registration, browsers, Web serve	20	10
2	**Working with HTML**Internet Overview: Internet Concepts, Evolution, Intranet and Extranet Concepts, Internet Applications: Email, telnet, FTP Worldwide Web: Concepts, Websites: Static, Dynamic, Active Scripting Languages: Server Side, Client side. Web: Design, development, publishing, HTTP, URL registration, browser, web server	20	10
3	**Use of Style Sheets**Basics to Style Sheets, Formatting Text by Using Style Sheets, Formatting Paragraphs by Using Style Sheets, Displaying Graphics, External Style Sheet, Internal Style Sheet, Inline Style Sheet	25	12
4	**Layout and Navigation of Webpage**Create navigation aids, area-based layouts, create and format tables, create user forms with Javascript and external content	25	12
5	**Web Hosting**Publishing web Pages, HTML for Email	10	4
	Total	100	48

Reference Books

1.	**Internet for everyone (TextBook)** By Alexis Leon, Mathews Leon | Leon Tech World
2.	**“World Wide Web design with HTML”,** By C Xavier, | TMH
3.	**Step by Step HTML 5** By Faithe Wempen | Microsoft Press and PHI Learning | South Asian Edition
4.	**HTML: A Beginner's Guide 5/E** By HTML: A Beginner's Guide 5/E | McGraw Hill | 5th
5.	**HTML Black Book** By Steven Holzner | Dreamtech Press
6.	**Teach yourself Java Script in 24** By Michael Moncur Publisher | Pearson Education

Course Outcome

After Learning the Course the students shall be able to:
1.Explain the fundamentals of computer networks and apply the Bootstrap framework to design responsive web pages. 2.Create structured web pages using HTML and advanced features of HTML5 for enhanced functionality and design. 3.Design a pleasing and well-structured web layouts using CSS and CSS3 techniques. 4.Develop interactive web elements and dynamic content using JavaScript for client-side scripting.

List of Practical

1.	**Print your name**
2.	**Set Title**
3.	**bold, italic, underline and break tag**
4.	**print names in different colors**
5.	**different style font**
6.	**use different font size** Print a below paragraph. Each sentence should be a different font. HTML stands for Hyper Text Markup Language. It is the core language of the world wide web and is used to define the structure and layout of web documents by using various tags and attributes. Although a fundamental language of the web, HTML is a static language - content created with it does not change.HTML is used to specify the way webpages look, not how they function.
7.	**underlined, italic and bold** Print below paragraph that is a description of a book, include the title of the book as well as its author. Names should be underlined, italic and bold. One particular book which is recommended reading is The Street Lawyer by John Grisham. This book is about a lawyer who begins re- evaluating his priorities in life when a bad incident occurs within his law firm. Consequently, he becomes acquainted with the inner city streets, and realizes the harsh existence of the homeless, and vows to give them a chance in the courts. The Street Lawyer is a great book. It is well written and interesting. Other books by John Grisham include The Firm, The Pelican Brief, and The Client.
8.	**different heading size** Print Orange to the screen with every letter being a different heading size. O R A N G E
9.	**use superscript** Print the squares of the numbers 1 - 10. Each number should be on a separate line, next to it the number 2 superscripted, an equal sign and the result. (Example: 102 = 100)
10.	**different heading size** Print your name to the screen with every letter being a different heading size.
11.	**lists** Write a program Write a program to get following output : An ordered list with numbers (default): 1. Telephone 2. Cellular phone 3. Television 4. Fax machine An ordered list with lowercase letters: a. Telephone b. Cellular phone c. Television d. Fax machine An ordered list with uppercase letters: A. Telephone B. Cellular phone C. Television D. Fax machine An ordered list with lowercase roman numerals: i. Telephone ii. Cellular phone iii. Television iv. Fax machine An ordered list with uppercase roman numerals: I. Telephone II. Cellular phone III. Television IV. Fax machine
12.	**Unordered list** Write a program to get following output : An unordered list with disc bullets (default): , Telephone , Cellular phone ,

	Television , Fax machine An unordered list with square bullets: Telephone Cellular phone Television Fax machine An unordered list with circle bullets: o Telephone o Cellular phone o Television o Fax machine
13.	**definition list** Write a program to get following output : , Color 1. Red 2. Black 3. Yellow , Fruits & Vegetable i. Fruits F. Banana G. Orange H. Apple I. Pineapple ii. Vegetables Brinjal Okara Cabbage
14.	**horizontal lines** Prints an h1 level heading followed by a horizontal line whose width is 100%. Below the horizontal line print a paragraph relating to the text in the heading
15.	**preformatted text** Print some preformatted text of your choosing.
16.	**definition list** Print a definition list with 5 items.
17.	**links** Create links to five different pages on five different websites that should all open in a new window.
18.	**images** Display five different images. Skip two lines between each image. Each image should have a title.
19.	**image with border** Display an image that has a border of size 2, a width of 200, and a height of 200.
20.	**link to a search engine** Display an image that when clicked will link to a search engine of your choice (should be opened in a new window).
21.	**display the image in the browser** Display an image that when clicked will link to itself and will display the image in the browser by itself.
22.	**links to various search engines** Create some links to various search engines (google, yahoo, altavista, lycos, etc).
23.	**link at the bottom of the page** Create a page with a link at the bottom of it that when clicked will jump all the way to the top of the page.

24.	**link at the top of the page** Create a page with a link at the top of it that when clicked will jump all the way to the bottom of the page. At the bottom of the page there should be a link to jump back to the top of the page.
25.	**hyperlinks on mail** Write a Program to demonstrate hyperlinks on mail.
26.	**using special character** Write a code to display following output by using special character P A R U L
27.	**inline stylesheet** Write a program to demonstrate inline stylesheet
28.	**internal stylesheet** Write a program to demonstrate internal stylesheet
29.	**external stylesheet** Write a program to demonstrate external stylesheet
30.	**CSS Comment** Write a program to demonstrate CSS Comment
31.	**font property by using external stylesheet** Write a program to demonstrate all font property by using external stylesheet.
32.	**class selector** W.A.P to demonstrate class selector.
33.	**ID Selector** W.A.P to demonstrate ID Selector
34.	**HTML Selector** W.A.P to demonstrate HTML Selector.
35.	**insert an image via CSS** W.A.P to and vertically repeat it. Also add background color in web page.
36.	**text property by using inline stylesheet.** Write a program to demonstrate all text property by using inline stylesheet.
37.	**list property by using external stylesheet** Write a program to demonstrate all list property by using external stylesheet.
38.	**margin property by using internal stylesheet** Write a program to demonstrate all margin property by using internal stylesheet.
39.	**padding property by using external stylesheet** Write a program to demonstrate all padding property by using external stylesheet.
40.	**border property by using external stylesheet** Write a program to demonstrate all border property by using external stylesheet.
41.	**border**

	W.A.P to demonstrate only top and bottom border. Top border color should be red and bottom border color should be blue. Top border style should be dashed and bottom should be double.
42.	**border only 3 side** W.A.P to demonstrate border only 3 side. All three side have different border type.
43.	**thumbnail** W.A.P to demonstrate thumbnail. Image should be open in new tab.
44.	**hyperlink CSS Style** W.A.P to demonstrate hyperlink CSS Style.
45.	**table** Write a program to create following table. Name Post Salary Geeta Manager 20000 Ravi clerk 5000 Mohan clerk 5000 Shyam Clerk 5000
46.	**table formatting with background color** Write a program to get following output. Name Post Salary Geeta Manager 20000 Ravi clerk 5000 Mohan Clerk 5000 Shyam 5000
47.	**web page** Create following user registration form
48.	**validation** Create following student registration form with proper validation. Use CSS for formatting effect.

Course: IMCA (A.Y.-4) **Semester:** 1

Prerequisite: Basic approach of problem-solving methods

Rationale : The objective of this course is to familiarize students with concepts of fundamentals of information technology along with developing the logic for solving a given problem using the procedure-oriented language C for construction of code

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	0	4	-	5	20	20	20	60	30	150

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Introduction of C**History, Algorithm and flowchart, Structure of C, Elements of C: Character set, C Tokens, Keywords Identifiers, Variables, Constant Data Types, Comments, C Programming Applications and Importance, Operators: What is operator? Types of operators, Built-in Operators: Input/output operators, Concept of header files	10	5
2	**Importance of Classes and Pre-Processor**Introduction, Different pre-processors: #include, #define , Importance. Storage Classes: Automatic, External, Static and Register Variables, Decision Making / Control Statements: If, If Else, Nested if, Switch, looping statements: For, Nested for, While, Do while, Other statements: Break, Continue, Goto, exit.	10	5
3	**Use of Array**Declaration, Initialization, Access of one dimensional & two-dimensional arrays, Programs using one- and two-dimensional arrays: Adding multiplying, Transposing matrices: sorting and searching arrays	20	10
4	**Use of Function, Structure and Union**Definition, need of function, Types of function, Built-in and User define Functions, User define Functions, Categories of functions: With/without arguments, With/without return values, Recursion, Functions with arrays, The scope, visibility & lifetime of variables. Structure definition, Giving values to members, Structure initialization, Comparison of structure variables, Arrays of structures, Arrays within structures, Structures within structures, Structures & functions, Unions Size of structures	25	12
5	**Working with Strings and Pointer**Understanding pointers, Accessing the address of a variable, Declaring & initializing pointers, accessing a variable through its pointer, Pointer expression, Pointer increments & scale factor, Pointers & arrays, Passing pointer variables as function arguments. Declaring & initializing string variables, reading strings from terminal, writing strings to screen, Arithmetic operations on characters, putting strings together, comparison of two strings, string handling functions, table of strings	20	10
6	**Files Structure and operations**i. Opening a File, ii. Reading a File iii. Closing a File Text modes I/O operations on files Binary modes Command line arguments File function fprintf() ii. fscanf() iii.getc() iv.putc() v. fgetc() vi.fputc() vii.fseek () viii. feof()	15	6
	Total	100	48

Reference Books

1.	**Programming in ANSI C** By E. Balaguruswamy | Tata McGraw-Hill
2.	**The C Programming Language (TextBook)** By Brian W. Kerningham and Dennis M. Ritchie | PHI
3.	**Programming with C** By K.R. Venugopal and Sudeep R Prasad | Tata McGraw-Hill Education
4.	**Let Us C** By Yeshavant Kanetkar | BPB Publications

Course Outcome

After Learning the Course the students shall be able to:
1.Understand the basic concepts and features of the C programming language and its applications in software development. 2.Explain the role of classes and pre-processors in C programming, and utilize pre-processor directives effectively in code. 3.Implement arrays, strings, and pointers to solve complex programming problems and manage data efficiently. 4.Design and implement programs using functions, structures, unions, and file operations for structured and efficient code management.

List of Practical

1.	**WAP to Add Two Integers**
2.	**WAP to Floating Point Numbers**
3.	**WAP to print ASCII Value of a Character**
4.	**WAP to Find Quotient and Remainder**
5.	**WAP to Swap Two Number**
6.	**WAP to Find Area of Circle**
7.	**WAP to Find Simple interest**
8.	**WAP to Sum of 5 subjects and Find total and percentage**
9.	**WAP to Find Gross salary of an employee**
10.	**WAP to Find a Number is Even or Odd**
11.	**WAP to Find Roots of a Quadratic equation**
12.	**WAP to Check Whether a Character is an Alphabet or not**
13.	**WAP to Find Sum of Natural Number**
14.	**WAP to Find Factorial of a Number**
15.	**WAP to Print following patterns**

16.	WAP to print Fibonacci Series
17.	WAP to Find GCD of two Numbers
18.	WAP to Find LCM of two Numbers
19.	WAP to Display Character from A to Z Using Loop
20.	WAP to Reverse a Number
21.	WAP to Check Whether a Number is Palindrome or Not
22.	WAP to Find Prime Numbers Between Two Intervals
23.	WAP to Check Number is perfect
24.	WAP to Create Pyramid and Structure
25.	WAP to Draw Pascal's triangle
26.	Write a menu-driven program using Switch case to calculate the following Area of circle Area of square Area of sphere
27.	Write a menu-driven program using Switch case to create calculator
28.	WAP to calculate square and cube of a given number using function
29.	WAP to swap two numbers using function
30.	WAP to calculate area of circle using function and with all four categories
31.	WAP to add two distance using function.(Use inch and feet for the calculation)
32.	WAP to calculate sum of elements of 1D array using function
33.	WAP to find factorial of a number using function
34.	WAP to add two 2D arrays using function
35.	WAP to store records for book and also display using structure
36.	WAP to print and display records of employee details using array of structure
37.	WAP to display marks of 3 subjects for 3 students and then calculate total for subject wise and then make grand total
38.	WAP to display Id, name and percentage of a student using structure and function passing by value
39.	Write a C program to create a structure student, containing name and roll. Ask user the name and roll of a student in main function. Pass this structure to a function and display the information in that function
40.	WAP to access addresses of different types of variable using pointer. (Include all type of variables)
41.	WAP to swap two integers using pointers
42.	WAP to compute area and perimeter of rectangle using pointers as parameter to function
43.	WAP to store values of array and display it using pointers

44.	Write a C program to read string from terminal. Using scanf(), gets to read a string
45.	WAP to pass string to a function and find length of it
46.	WAP to concatenate two strings and copy the string 1 to string 2
47.	WAP to sort elements in lexicographical order (dictionary order ascending order)
48.	WAP to convert binary numbers to decimal and vice a versa
49.	Write a C program to read name and marks of n number of students from user and store them in a file
50.	Write a C program to read name and marks of n number of students from user and store them in a file. If the file previously exits, add the information of n students
51.	Write a C program to write all the members of an array of structures to a file using fwrite(). Read the array from the file and display on the screen